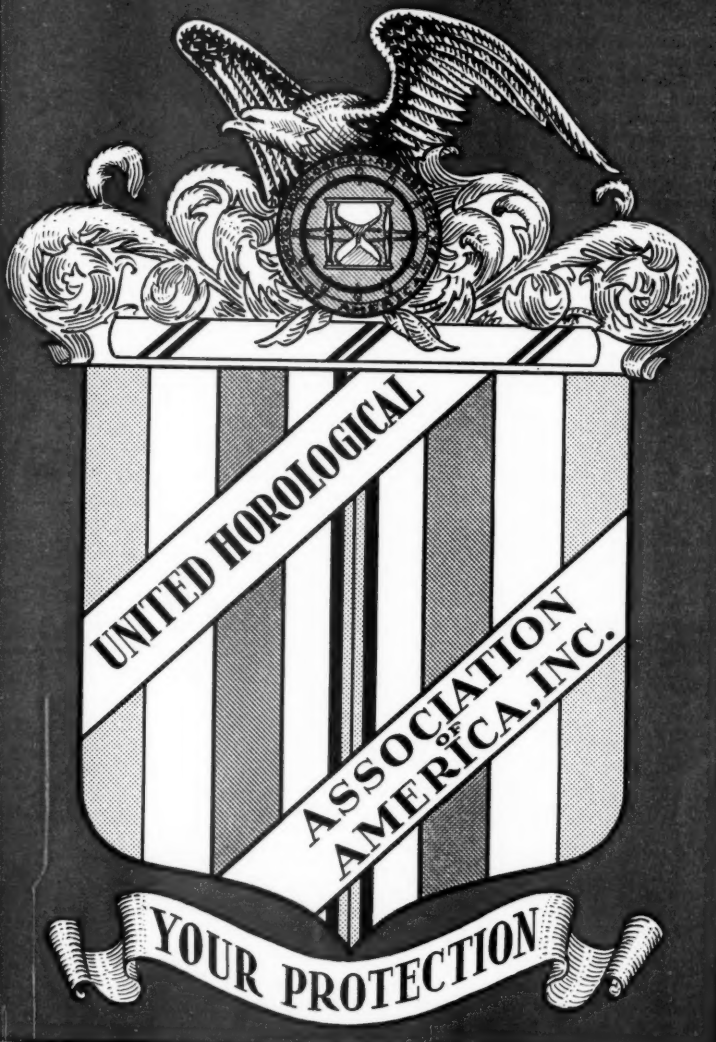
The AMERICAN HOROLOGIST

OFFICIAL NATIONAL PUBLICATION



Vol. 1 NOVEMBER, 1936 No. 11

THE AMERICAN HOROLOGIST

Official National Publication of the United Horological Association of America, Inc., and Its Affiliates

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To inculcate the principles of the U. H. A. of A., fraternal and commercial advancement; to promote the welfare and enhance the betterment of its members; to cultivate good fellowship and a higher degree of knowledge in Horology; to be sent free monthly to all members. National membership, $2.00 per year. Make application to nearest secretary or representative. Addresses can be secured in the NATIONAL AND LOCAL INFORMATION column in this issue.

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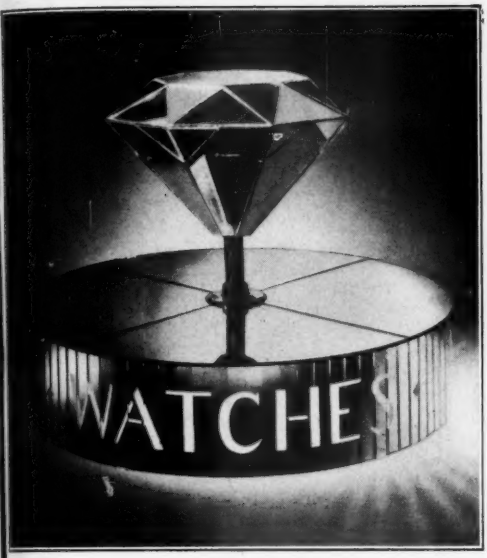
Contents

	Page
Conventions and the Coming 1937 Convention, by Jos. A. H. Voss	5
Watch Must Be Sterile, by L. T. Christofferson	8
Charles A. Braun, Technical Board Member	9
1937 Convention	9
Pivoting and Proper Procedure, by R. D. Howell	11
National Watch Inspection Week	12
Smallest Store	12
The Relationship of Horology to Natural Law, by S. P. Dayton	13
L. W. Heimberger, Executive Board Member	13
Quick Method of Hardening and Tempering Small Steel Parts, by D. L. Thompson	14
Harry Flotermersch, Executive Board Member	15
Elgin Drive to Boost Christmas Gift Sales	18
Change on Executive Board	19
Nebraska Horological Association, by Morris Yost	20
Watch Constructed by A. J. Shadley	20
Earth, the Master Clock, by D. L. Thompson	21
Watchmakers Competition	22
Cincinnati Guild, by R. J. Flaxmayer	22
Do You Know, by W. H. Samelius	23
New DeLuxe Paulson Time Micrometer	27
Crystal Grinder Good Investment	28
R. E. Fisher, National Publicity Director	28
Helpful Books for the Horologist	29
National Affiliates	31
National Convention	Outside Back Cover



A GEM of a DISPLAY

An Aid to HOLIDAY Sales

Built to attract, this mirror display revolves at just the right speed . . . the words "watches" (shown in illustration), "diamonds" and "jewelry" are sand blasted on the revolving base and inside electric light bulbs reflect these words through the transparent lettering—a very attention compelling effect.

Affords Tremendous Sales Appeal

The top surface of base is covered with blue mirror, while the entire balance of display is covered with lustrous (silver) mirror. The base measures 14½ inches in diameter providing a large display area. The flat surface of the "gem" measures 5 inches in diameter and is suitable for the display of your feature item. Entire unit measures 11 inches high.

The Revolving Diamond

. . . will not only actually stimulate your diamond sales; but also will add unlimited "life" to your window, because the facets of this diamond reflect myriads of flashing sparkles all over the background and floor of your window.

No. AM771470. GEM-MIRROR REVOLVING DISPLAY

Complete as illustrated and described.....**$19.95**
(Operates on 110 A.C.—Complete with Cord and Plug)

ONLY
$19.95 COMPLETE
OR
$2.00 PER MONTH
FOR TEN MONTHS ON OUR CONVENIENT TEN-MONTH PAYMENT PLAN

●

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WORLD'S LARGEST WATCHMAKERS' AND JEWELERS' SUPPLY HOUSE

CHICAGO • NEW YORK • DALLAS • ATLANTA • BOSTON

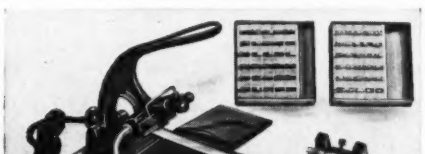
New Shaving Ease

THE NEW

Clip-Shaver Shaver $10.00

Sells to Jewelers for $7.00

Just one of the many sensational sellers shown in Style Ship Catalogue. IT'S FREE! ASK FOR IT



Here Is the

Paulson Gold Stamper

The only successful low priced gold stamper.

Stamps pens or leather directly with gold foil. No filler used.

This wonderful electric stamper shown in "Voice of Retail Jeweler," complete with type for stamping fountain pens and type for stamping leather goods and gold foil, for..... $18.50

If you have not received the Voice of the Retail Jeweler and Style Ship Catalogue, ask for them.

Henry Paulson & Co.

37 SO. WABASH AVE. — CHICAGO, ILL.

Conventions and the Coming 1937 Convention

By Jos. A. H. Voss
National Historian

Jos. A. H. Voss

The second annual Convention of the U. H. A. A. has come and gone, and with it has passed into history an epoch relatively important to all organized movements for the advancement of those codes of ethics or fair practice, that in spite of all opposition must be brought about to preserve an orderly and well-balanced alignment in our industry.

It is of especial interest to the allied Jewelry Industry, and especially so to the Retail Jewelers of the United States: because of the determined effort on the part of the U. H. A. A. to enlist its organized forces to participate in any concerted action, that will raise the Jewelry Industry to its former plane of prosperity, and combat any and all destructive agencies that threaten its well-being.

At the first National Convention in St. Louis in 1935, the rank and file of the U. H. A. A. with more courage than Wisdom stepped boldly on the stage of world affairs, made its initial bow and requested of those all ready there to kindly make room, for another organization is now coming up.

At the same time with a breath-taking display of the same courageous spirit the National organization felt itself justified in hanging up on the starry sky of greater achievement its own bright scintillating star, not of the 1st magnitude, but manifestly fair and big enough for those to behold who are forever charting the sky of worth while human endeavor for recognized stellar lights that will shed its rays and its benedictions on at least a fair representation of its people.

To its national officers and the members of the Executive Board the second National Convention offered a message and a challenge. A message asking for closer co-operation, a stronger sense of responsibility, and a desire for one hundred percent State and National affiliation. A challenge collectively for a continued interest in the internal and external affairs, and a challenge to each individual officer as to what extent he will fight the eternal battle with his own natural disposition to follow the path of least resistance: the eternal battle of mind over matter, of smug complacency to sacrifice and hard work, of essentials over non-essentials, of achievement over the pursuit of pleasure and the spiritual over the material.

The National officers to whose creative ability, honor, sacrifice and persistency have blazed the way on the hazardous road to success all credit is due. These same officers are still at the head of the improved organization. Will they uphold the standards of the past now that success is fairly assured? We earnestly hope so, for from now on the National organization will be facing its most critical period. Having lived in comparative obscurity for the first years of its existence, and as stated before placed itself on the stage of world affairs in the Convention of 1935; the last Convention has certified the right of the organization to maintain its position on that same stage, and at the same time remove it from any obscurity, and automatically place it on a pedestal for the criticism of society.

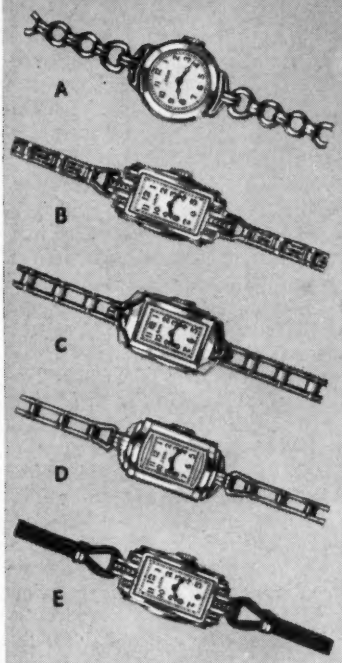
Having taken our place in the sun and enjoying its warmth and health-giving rays, we must not forget by the same token we are constantly in the full view of the critical eyes of the world who is ever ready to give a big hand in recognition of our accomplishments and only too ready to ridicule any mistakes and to condemn any failures. Having started the show we are of necessity compelled to play it out to a successful ending.

(Continued on Page 9)

THESE NEW ELGINS

. . . just in time to bring you

THE CLASSIC SERIES for Women



An array of lovely new Elgin semi-baguettes

● With pride Elgin presents the first semi-baguettes to sell for $32.50 and less! In price, in flawless dignity and charm, in unerring accuracy the "Classic Series" reflects the ultimate in watch value.

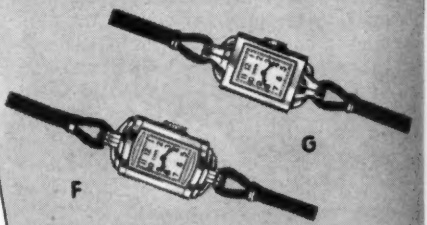
Each is refreshingly original in styling . . . the creation of designers who have taken their cue from the smartest new fashions. Each is thoroughly Elgin in craftsmanship. Each is accuracy tested to the standard of the stars.

Every model of the "Classics", by right of beauty and price, can do its special part in bringing you added Christmas sales and profits this season. Order a full selection from your wholesaler today.

A. *2769(nat.) 2768(white). 7j. 10K. gold filled. $32.50*
B. *2773. 10K. nat. gold filled. 7 j. Raised figs. $32.50*
C. *2771. 10K. nat. gold filled. 7 j. Raised figs. $29.75*
D. *2775. 10K. nat. gold filled. 7 j. Raised figs. $29.75*
E. *2705. 10K. nat. gold filled. Black silk cord. 7j. $29.75*
F. *2707. 10K. nat. gold filled. Black silk cord. 7j. $27.50*
G. *2739. 10K. nat. gold filled. Silk cord. 7 j. $27.50*

DON'T FORGET . . .

Listen to "The Elgin Football Revue", Saturday nights, 8:30 P.M. Eastern Time over CBS ● Keep your radio display card in the window ● Watch for Elgin's "gift preview" ad in The Saturday Evening Post that appears Nov. 17 ● Get your "St. Nick" letters in the mail ● Run Elgin newspaper ads regularly every week ● Tie in strongly with Elgin for an outstanding Christmas season!



THE ELGIN

MAKE THEIR BOW

important new Christmas business!

THE Cavalier SERIES *for Men*

Handsome timepieces—in the popular new 8/0 size

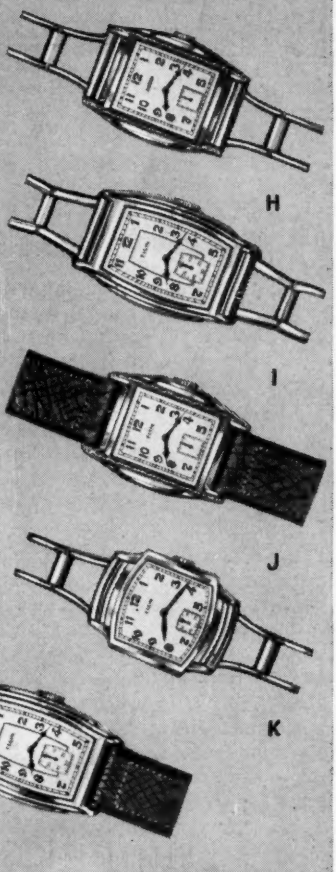
● Now you can offer a wide choice of Elgin watches in the compact 8/0 size—*all at less than $30.00!*

But a price range of $25.00 to $29.75 is only one feature of these fine 7 jewel Elgin "Cavaliers".

Here are watches that are brilliantly styled . . . that give new meaning to the terms "ruggedness" and "stamina". Watches, too, that embody all the 7 features of the 8/0 size movement. Each runs 45 hours on a single winding . . . has extra-large jewels . . . scientific hard balance wheel . . . and other advantages.

The new Elgin "Cavaliers" are ready to start pushing your volume upward. Order today, and take a big step toward your best Christmas season in years.

H. *1899. 10K. nat. gold filled, Veritas back. $29.75*
I. *1883. 10K. nat. gold filled. Raised figs. $27.50*
J. *1869. 10K. nat. gold filled, Veritas back. $27.50*
K. *2801. 10K. nat. gold filled. Emb. dial. $27.50*
L. *1843. 10K. nat. gold filled. Raised figs. $25.00*
M. *1867. 10K. nat. gold filled. Emb. dial. $25.00*



NATIONAL WATCH COMPANY *Elgin, Illinois*

Watch Must Be Sterile

By L. T. Christopherson, Washington
Technical Board Member

Most horologists are deeply concerned as to the proper method and procedure by which a watch should be cleaned. It is proper that they should. However, there are other elements which enter into this operation which are often overlooked—in fact seldom given any serious thought.

Your watch must be more than clean —it must be sterile as well as perfectly dry.

It is needless to ponder over the various methods concerning the different ways used in cleaning watches, as I will assume that you are familiar with this part of the work. We are, however, concerned as to the performance of the watch after our work is completed. Of course, the rate at which the watch will perform will depend upon various conditions. Assuming that the watch is in order, it will only rate as a time-keeper in proportion to the tolerance calibrations made in the watch in the process of manufacture.

One of the most important functions in the completed assembly is the steady flow of power which is contained within the mainspring barrel, while the spring is wound. Herein lies the point of having a sterile cleaning.

The parts of the watch which come in contact with the oil, if not sterile, will in a short time contain no oil, as the oil like a great many other elements will follow the line of least resistance.

You can very easily prove this point by taking a clean and sterile piece of glass and place thereon a small globule of watch oil, and you will note that it will remain in the form of a globule for a long time. Now just wipe this oil off the glass with a cloth but do not make the glass entirely free from the small amount of oil which might remain, and repeat placing a small globule of fresh oil on the glass, and you will note that it will run in all directions.

This is the action which takes place on the bearings of a watch which is not clean. You, as well as I, have in the past oiled watch bearings and within a short time your customer would be in your office and complain that his watch did not rate as closely as it had done a few months prior. Upon examination with the microscope through the cap stones, it would quickly be revealed that the bearing was dry and you would wonder as to whether the oil had departed. However, due consideration in the oiling of the end stone must be made and the proper amount of oil must be placed thereon. If the end stones are given too much oil, the capillary pull will be away from the pivot and the oil will be drawn upward and around the jewel settings.

In regard to what is good watch oil, I shall not mention any specific kind. There are very few kinds or brands that deserve to be used on such a fine instrument as a watch. One thing is certain—it must be of organic origin because oils from other sources do not contain elements which provide an unchanged viscosity under extreme temeprature changes and also in all of the mineral oils the evaporation is too rapid. Make a few tests for yourself and you will soon discover that the breaking down of the small oil balls which make up the oil mass will progress at a much more rapid pace in mineral oil than in porpoise oil.

For the last year I have been experimenting on the effects of colodial graphite on the watch main spring but up to this time I am not prepared to state my findings. I can, however, assure you that fish oil and graphite will not do.

It is of importance that you use a

clean oil cup. Make it sterile also before you fill it with fresh oil as any accumulation of dust and debris will only be transferred to the oil cups in the watch. If the oil is not clean and you look through the cap stone under the microscope, you will cover your face in shame and say to yourself, "It's a rotten job."

In applying oil to watch parts, I have four different oilers, but the one which I use most is just a small steel quill pen and to it I have affixed a handle about four inches long, using a small brass nut to hold the pen rigid on the handle, which also serves to keep the pen from touching the top of the bench and thereby foul the oil.

Be assured, that while the oiling may seem to some as a rather unimportant item, get right on this subject. Follow a few simple rules. It will pay you handsome dividends by receiving fewer complaints. To commence with, don't forget that even if you use a good brand of oil you can still have trouble if your jewels are not sterile and the oil improperly applied.

Charles A. Braun

Mr. Braun, Idaho Technical Board member, is one of our recently appointed Technical Board members, having been appointed due to his outstanding ability and broad experience in the field of Horology. His first article appearing in THE AMERICAN HOROLOGIST, THE MOTIVE POWER, DYNAMIC AND STATIC POISE brought many letters of favorable comment and requests for additional articles by this well versed Horologist.

Mr. Braun will gladly comply with these requests providing you will indicate the subjects you are mostly interested in. Send your requests to National headquarters.

CONVENTIONS AND THE 1937 CONVENTION

(Continued from Page 5)

In anticipation of a great year ahead, let us put our minds in the right attitude, and our disposition and constructive abilities tuned to the needs of building up this structure so laboriously begun and whose groundwork is now so well established.

From the most humble member and including the Guilds and State Associations: let us work consistently as individuals and members to the straight path before us; acquisition of new members, making mere members, better members, bigger and better Guilds and efficient State Associations, so that the National officers, on whom rests the solemn obligation of success or failure may gain renewed life and consolation from the enthusiasm shown by all.

It's good to do the hard job, for it's
good to play the man,
For the hard job strengthens courage
which the easy never can,
And the hard job, when it's over, gives
the man a broader smile—
For it brings the joy of knowing that
he's done a thing worth while.

Make our third convention a greater event than ever—lend your support, we are making progress.

1937 Convention

The National Horological Assn. has decided to offer the trade booth displays during their 1937 Convention to be held in Chicago, Illinois, Congress Hotel, April 26-27-28, 1937. Contracts and floor space diagrams available through Orville R. Hagans, Executive Secretary, 3226 East Colfax Avenue, Denver, Colo.

Our 1937 Convention will surpass all others of the past. Elaborate plans are being made. All watchmakers and jewelers are cordially invited and urged to attend.

Mention "The American Horologist"
Patronize Our Advertisers

FOR YOUR BENEFIT—

and that of the United Horological Assn.

FOR MUTUAL PROFIT

We are daily in receipt of scrap gold and silver shipments from Association members.

If you haven't read Mr. Hagan's letter of August 31st, setting forth in detail the co-operative plan by which you and your Association and all its members benefit, you'd better do so soon. It will pay you.

TIME EXTENDED

SINCE Mr. Hagan's letter could not be mailed until Sept. 1st, we have decided to extend the first year during which totals accumulate and resulting returns to the Association increase, from April 1st to September 1st, 1937.

Ask Your Association or Fellow Member About Our Prompt, Fair Method of Doing Business if You Haven't Dealt With Us So Far

We pay the **highest market** rate for your scrap gold, 6¾ cents per karat per pennyweight by assay. Even so, we make no refining or **handling charge** if the value of your shipment is $30 or over.

We can claim in all modesty that it has paid thousands of jewelers to deal with us for more than a quarter century.

Now we are paying into your Association Treasury the extra profit these shipments are producing, **for the benefit of all.**

We Actually Are "YOUR REFINER" Now!

HOOVER & STRONG, INC.

119 WEST TUPPER ST., BUFFALO, N. Y.

Established 1912

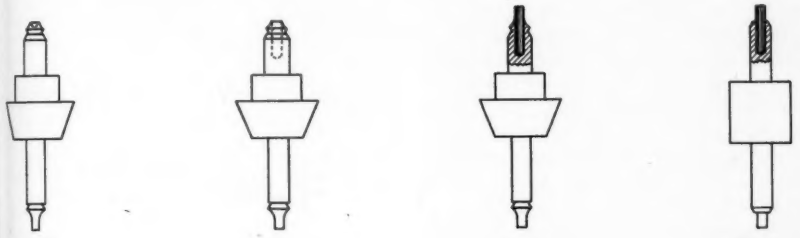
We manufacture a full line of jeweler's golds. Write us.

Pivoting and the Proper Procedure

BY R. D. LOWELL

The watchmaker should have a good assortment of gravers, drills, oil stone slips, pivot polisher, laps, and most important of all—good, true chucks.

In some cases, it is necessary to use a cement chuck, countersunk in the center. By warming the cement chuck, the staff or pinion can be held securely and trued by holding a piece of peg wood against staff while running until cement has hardened. Before the staff or pinion has been placed in the chuck, the temper should be slightly drawn in the end to be drilled. After truing staff in chuck, take a flat oil stone slip and flatten end where broken, then center with a sharp graver. To drill, use a drill somewhat larger than pivot. Put drill in center to be drilled, running lathe at moderate speed and holding drill in pin vise or tail stock, pressing lightly. After it starts cutting, it is well not to disturb drill until finished. Take a piece of pivot wire or small needle, with temper drawn slightly, put in pin vise, file to proper size and flatten end, then place in hole about half way. While holding, cut with sharp cutting pliers the right length so that when driven in hole by a small hammer it will have plenty of extra length. Take a sharp graver and true up while running at a moderate speed. Stone end and it is ready for grinding, polishing, burnishing, etc. See that the pivot projects a little beyond the pivot hole by removing end stone. See that the end stone is not pitted and sets level. The pivot should not have too much end play; about one-sixth of the diameter of the pivot. The pivot should be rounded, well polished, hard, and slightly rounded on the end to keep from cutting end stone. The jewel holes must be round and smooth. The balance pivots should be measured for diameter, for position adjustments.



Staff Centered — Hole Drilled — Staff Pivoted — Pinion Pivoted

WORLD'S STANDARD FOR OVER A CENTURY

GENUINE AMERICAN WATCH MATERIAL SOLD EXCLUSIVELY

JURGENSEN Superior Recoiling Main-spring BPR

450 SIZES

GENUINE SWISS WATCH MATERIAL SOLD EXCLUSIVELY

WITH FINISHED ENDS FOR ALL MODELS OF SWISS WATCHES ONLY
$2.50 DOZEN—$30.00 GROSS

Complete Stock of Jurgensen Main Springs with Unfinished Ends

Sole Agents BUHL, PEER & KEEFE

37 MAIDEN LANE
NEW YORK CITY, N. Y.

"National Watch Inspection Week"

Proved a great success in all sections where Jewelers and Horological Associations made displays and devoted time and interest in their repair departments. Cincinnati Guild again scored a high interest through window display and newspaper advertising. Toledo Guild and all others report splendid returns.

The next event of this kind will be carefully planned, and with our past experience will enable the U. H. A. A. to supply all Jewelers with display materials suitable for the occasion. We have experienced a great demand for varied materials, and display materials will be available for members and non-members.

Smallest Store—

The world's smallest jewelry store, dealers in Elgin watches, is owned and operated by Rolf H. Bruhn, a former student at the Elgin Watchmakers College. The store is located in the Liberty building, 602 Grand Ave., Des Moines, Ia.

The store includes a show window one and one half feet wide by five feet in length, built in the door which opens into the lobby of the Liberty building. A neon sign labels the shop, "World's Smallest Jewelry Store."

Customers are unable to enter the store proper, but transact their business from the lobby. When the show case door is closed, it allows a space three feet square for a chair and a bench space 35 by 13 inches. On the wall is shelf space for a watch cleaning machine, crystal cabinet and electric soldering equipment. The lathe, motor and Elgin material cabinet are located on top of the bench and the staking tools and all lathe chucks are suspended from a stand.

Mr. Bruhn specializes in watch and clock repairing, jewelry repairing, ring soldering and engraving. Truly, this is one of Elgin's most unique retail outlets.

—*The Watchword.*

We Do
FIVE things WELL

1—In-2-Sta Watch Crystals; and magnifying Rock, Flat Tops, as well as all special glass jobs.

2—Fine dial refinishing, new dials to order; and general dial work.

3—Authentic 14-karat, gold-filled bracelet watch crowns, platinum shell, solid gold and platinum.

4—Complete coverage for mainsprings, American and Swiss, featuring The Monnat Geneva Resilient Mainsprings.

5—A complete line of genuine imported English Watch Straps.

* * *

DUTCHER BROTHERS
Incorporated
10 West 47th Street
New York City

Young Men!
Learn Watchmaking
Famous Watch College Will Give You Start in This Well-Paid Field

If you are an ambitious young man over 17 and anxious to enter a fine profession, enroll in the Elgin Watch College. Limited number of openings now available. Hundreds of graduates own profitable businesses. Others make fine salaries as watchmakers for leading jewelers. College is sponsored by the Elgin National Watch Company. It offers intensive shop training under expert Elgin watchmakers. Moderate tuition. Write for full details on this unusual opportunity. Address Dept. E-10.

ELGIN WATCH COLLEGE
Founded 1921
E. L. Schmidt, Registrar Elgin, Illinois

Our work costs no more than ordinary work.
Incomparable Watch Case Repairing
BECKER-HECKMAN COMPANY
29 East Madison St. Chicago, Illinois

The Relationship of Horology to Natural Law

By S. P. Dayton

RELATIVE Magnetic Density is the basis of all law and the reason why the earth stays an average of 93,000,000 miles from the sun is that there are two sets of atoms, one positive and attracting and the other negative and repelling. As long as there are equal numbers of each of these atoms the earth will remain as it is, but should the negative atoms diminish it would be drawn closer to the sun as would all the other planets. On the other hand, just the opposite would happen if the positive atoms diminished. So perfectly do these atoms function in their passage back and forth to the sun that the earth does not deviate from its path a second in 10,000 years. These atoms are so small that 900,000 of them can revolve on the point of a pin. They are said to be the basis of all power, light, life and energy. Everything is controlled by them and if under perfect control, will function perfectly. If you could make a perfect watch it would keep perfect time. Because it isn't entirely perfect is why it fails to run perfect.

In 1730, Graham invented the dead beat escapement and discovered the natural law of that class of escapement and with some refinements it stands today, although first applied to a clock, as the peer of all practical escapements for both clocks and watches. It was applied to a watch by Thomas Mudge. Phillips, the noted horologist, discovered that the relative expansion of brass and steel was 74 parts of steel to 121 of brass and thus was perfected the bimetalic balance. The only apparent improvement to that seemed to be in the quest for a metal wherein expansion and contraction would be nil and invar appears to have met that requirement. The mercury pendulum and the gridiron pendulum were discovered for the same purpose and invar seems to have also been the answer to temperature adjustment in clocks. The side pull and excessive pivot friction of the flat hairspring was disastrous to accurate time in watches and the brequet solved that difficulty fairly well until the quest for something more perfect brought about the inner terminal hairspring which seems to have eliminated side friction as far as possible. It is not always advisable to make watches the most perfect way as they are too difficult for the average man to keep in repair.

I haven't the space to elaborate farther on the various discoveries of Natural Law that have served to bring about that high state of perfection now existing in our modern timepieces. It must be apparent to the most ordinary horologist that a study and even a partial knowledge of natural law is necessary to an understanding of applied horology.

L. W. Heimberger

Mr. Heimberger, Columbus, Ohio National Executive Board member, is one of our new Executive Board members elected to fill an unexpired term. He is also General State Secretary of Ohio Watchmaker's Association.

During Mr. Heimberger's first six months on Executive Board he has displayed an unusual fitness for the offices he holds. As State Secretary he cannot be equalled. As an executive member he displays the same characteristics of interest, loyalty and fearless expression of his convictions.

Mr. Heimberger is waging a vigorous campaign from his office for additional advertisers for our paper, knowing this is needed. He urges the members to use the Special Notice columns of our paper thereby aiding the organization and the members who take advantage of this medium.

A Quick Method of Hardening and Tempering Small Steel Parts

By D. L. Thompson

We harden a piece of steel by heating it to a dull cherry red and plunging it into water, oil or any substance that will quickly cool it.

Steel hardened in water, mercury, nitric acid, or cyanide of potassium will be very hard and brittle while that hardened in oil, tallow, or bees-wax will be quite hard and very tough. The latter method is the one most useful to the watchmaker.

The most important things to consider when heating a very small part, or a thin one, is that it is necessary to heat the part evenly all over and not to overheat, or burn it.

Steel that is overheated and then hardened will be found to have a coarse grain which makes it easy to break, while if heated to a dull red and hardened it will have a smooth and even grain that will require greater force to break. This can be easily demonstrated by heating a rod of fine steel so that the end, for some distance, will be at white heat and then hardening. If this rod is now broken at the three places where it showed white, bright red and then dull red it can readily be seen by the appearance of the grain at these fractures and the difference in force necessary at each of these places to break it, the effect of overheating. The higher the grade of steel the less heat it will require to harden it and the lower the grade the greater the temperature will have to be to properly harden it. It is well, then, to first harden a small piece of the steel you wish to use and make this test for the proper temperature to which it must be heated. This is especially recommended in making staffs.

A part must be heated evenly for the reason that if it were heated only on one side it would warp upon being thrust in the cooling bath, due to the uneven contraction of the metal on opposite sides.

In order to heat the part evenly and prevent warping, a simple method is to wrap around it a short length of fine wire by which it can be held and turned in the flame. A small, wide mouthed, bottle containing oil is held as closely as possible to the part being heated and the part withdrawn from the flame and thrust, endways, in the oil as quickly as it can be done. The shorter the distance from the flame to the oil the better, for if it is some distance the steel will be cooled by the air to below the correct hardening temperature before it reaches the oil. To prevent a scale being formed on the steel by the action of the heat and air it may be covered with soap before heating. This prevents the oxide (scale) being formed by the air and the part will come out of the hardening bath clean.

Steel just hardened, even by oil, is far too brittle for most purposes, and in this condition cannot be worked by file or graver, so it must be reheated a certain amount to draw the temper to, in the case of watch parts, a blue color. Tools for use on brass or soft steel should be drawn to a light straw; but those for use on tempered steel are made as hard as possible and not tempered at all.

A quick method of tempering small parts is to merely withdraw them from the oil after hardening and holding in the flame until the part is hot enough to burn the oil off. This will be blue, or spring temper. The part may be tempered in bees-wax in a spoon over the flame, when the wax begins to smoke, the part will have been tempered to a light straw color (good for drills, taps and cutters); when the wax smokes densely, to a dark straw (good for tools for use on soft metals); when the wax ignites in flashes, to a purple (good for certain parts which

are required to be especially hard); and when the wax all burns up, to a blue which is the temper to which springs, arbors, pinions and staffs are brought to permit working by tools.

Should we fail to heat a part quite hot enough to harden we will find it softer than before. This is called annealing and is a quick and useful way of making steel soft and workable. Steel should be so treated before cutting threads to avoid injury to our taps or screw-plate.

There may be instances when we desire an extra hard surface on a tool or part and this can be had by covering the surface of the article with cyanide of potassium and heating carefully until the cyanide combines with the iron, or steel. Avoid the fumes of the cyanide as they are most deadly. An article thus treated will have an extremely hard surface of steel while the interior will not be greatly affected. This method is called case-hardening.

Harry Flotermersch

Mr. Flotermersch, Kentucky National Executive Board member, is chairman of Organization Talks Committee, and has arranged many inspiring and helpful talks which will aid those organizations now operating and are in need of additioinal enlightenment.

Many of these talks are especially designed for new organizations being formed.

This material available to our associations and Guilds or those being formed as National affiliates.

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MINNEAPOLIS MILWAUKEE
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November 17 Opening Date in Elgin Drive to Boost Xmas Gift Sales for Jewelers

Elgin Watch Company to use 4-color spread in "Post" announcing special preview of Xmas items at retail jeweler's stores. Buyers urged to act now and take advantage of "lay-away" plan.

YOUR Quality Jeweler Invites You To A Special Pre-Christmas Showing Of Fine Gifts — Starting Tuesday, November 17th. With this urgent headline across two full pages in The Saturday Evening Post, The Elgin National Watch Company will present this month one of the most spectacular advertisements ever run in the interests of retail jewelers.

To assure maximum readership for the advertisement, no expense has been spared in its preparation. One of the country's foremost artist was engaged to create the dominant illustration. A gay Christmas spirit is imparted by the use of a brilliant red background for the new Elgin watches shown, and by holly sprigs in natural green. Other colors, combining to create velvety purples, rich yellows and soft flesh tones, endow the two facing pages with a warmth and beauty that is unusually appealing.

The selling message in the advertisement points out that gifts of jewelry for Christmas are truly smart—certain to please—and available at prices each customer desires to spend. An early visit to jewelers is strongly suggested so that selections may be made unhurriedly and from stocks that are complete. The text closes by recommending that buyers take advantage of jewelers' willingness to hold the chosen gifts until Christmas.

Advertisement Has 3-Fold Objective

In explaining the thinking behind the advertisement, T. Albert Potter, Elgin President said: "Studies emphasize that the jeweler's real competitors for consumer dollars are not other jewelers, but the distributors of radios, automobiles, washing machines, refrigerators, furniture and household appliances. A great number of these items are purchased as gifts at Christmas time. If we can implant the idea of a 'jewelry Christmas' in the minds of gift buyers early enough this season, we feel confident that we can re-route many of them to jewelry counters instead of into competitors' stores. This strategy will also bring to jewelers a long season of good selling and an increased flow of store traffic."

Backed by Coast-to-Coast Radio Show

While the "gift preview" advertisement is doing its important share in sending customers to retail jewelers, another tremendous force is at work toward the same end. "The Elgin Football Revue", on the air over 56 Columbia Broadcasting Stations at 8:30 p. m. Eastern Time every Saturday night is going out to 81,000,000 potential listeners, with an urge to select gifts of jewelry and to select them early. The market reached in a single week by this brilliant half hour show together with the powerful "gift preview" advertisement can be calculated at more than 95,000,000 individuals.

A special display card showing the "gift preview" advertisement in full natural colors has been mailed to Elgin jewelers. Officials of the watch company point out the necessity of keeping this card prominently displayed in order to reap full benefits from the national advertising.

WE HAVE IT!
The most complete assortment of
QUALITY MAINSPRINGS
For American and Swiss Watches
BEGIN NOW WITH accumulating a complete stock for your future needs. Choose wisely
SANDSTEEL Crosscurved Mainsprings
Made in U. S. A. by
Watch-Motor Mainspring Co., Inc.
145 HUDSON ST. NEW YORK CITY
Order from your Jobber. Ask for catalog.

IMPRESSIVE ELGIN ADVERTISEMENT ANNOUNCING NATION-WIDE PREVIEW OF JEWELERS' XMAS GIFT ITEMS

Appearing in The Saturday Evening Post out November 17, this dramatic double spread in 4 colors will urge buyers to select Christmas gifts of jewelry—and to select them now. It is estimated that 15,000,000 persons will see the advertisement.

CHANGE MADE ON EXECUTIVE BOARD

Ray C. Bauer

Mr. Bauer, former chairman of the Executive Board was obliged to resign his post due to recent changes in his vocation. He is now connected with one of our largest air lines as instrument service mechanic and felt that this office should be filled by a man actively engaged in Horology. However, he is still an active member and greatly interested in our work.

The National officers regret the losing of Mr. Bauer's active services. We know the Greater Miami Watchmakers Guild also miss his dynamic presence.

Mr. A. R. Raphael was appointed to the post of Executive Board Chairman at the request of Mr. Bauer and the sanction of the entire board.

John J. Lacher

The vacancy appearing on the Board was filled by Mr. John J. Lacher, of Omaha, Nebraska who will complete Mr. Bauer's term. Mr. Lacher is General State secretary of the Nebraska Horological Association, and has filled that office since the inception of the association.

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Estimates Given—Will Loan You W. W. or Mosley Lathe While Repairs Are Being Made
Poising Saws and Screwdrivers
Special Tools and Tool Improvements Our Specialty

JES I. HANSEN
501 E. Second Ave. Denver, Colo.

Nebraska Horological Association Hears Orville R. Hagans

On Sunday afternoon, October 18th, the Omaha Guild held an interesting conference at the Hotel Rome. All Nebraska and Iowa watchmakers were invited. The meeting was well attended and applications for membership were taken.

The purpose of the meeting was to contact the watchmakers of the two states and acquaint them with the benefits and aims of the U. H. A. A.

George F. Rathbun of Council Bluffs, president of the Omaha Guild, opened the meeting and introduced the speakers. The keynote address was delivered by Orville R. Hagans, National Executive Secretary.

Mr. Ray C. Leydecker of "The Omaha Bee-News" and former merchandising counselor and publicity director of the Omaha Jewelers Guild spoke on The Human Elements in Organization.

Mr. Hagans outlined the progress of the association from its infancy, the need of organization for the betterment of the industry and the elevation of the professioin to it's true standard of recognition. He also gave detailed information on the issuance of the National Plaque to eligible craftsmen and it's rigid contract of obligation.

Much interest was shown in the architectual drawings of the proposed National Institute of Horology, of which details were fully explained and which is to be philanthropically endowed. The institute is to house our National Headquarters, library, museum and educational facilities.

The road signs, which are to be used on highways were displayed and received favorable comment.

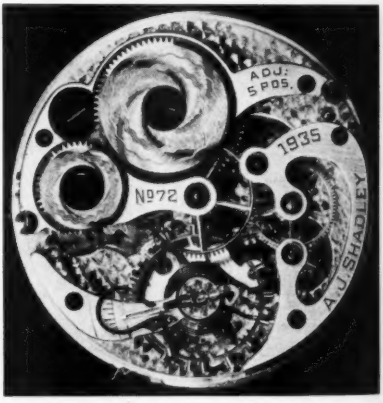
We had our first showing of the National's Slide Library and are arranging to avail ourselves of this feature soon.

Mr. Hagans is to be commended on his inspiring address which was received with whole hearted enthusiasm.

MORRIS YOST.
News Correspondent.

This movement, a 21-jewel watch, was constructed by Mr. A. J. Shadley while attending the Elgin Watchmaker's College, Elgin, Illinois.

On completion this watch showed a very fine rate, being adjusted to five positions, heat, cold and isochronism. It shows excellent workmanship and is a credit to its maker.



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DENVER, COLORADO
PHONE
MAin 7808

Earth, the Master Clock

By D. L. Thompson

TIME. Time, as a separate entity, has not yet been defined in language. Definitions will be found to be merely explanations of the sense in which we use the word in matters of practical life. No human being can tell how long a minute is; only that it is longer than a second and shorter than an hour. In some sense we can think of a longer or shorter period of time, but this is merely comparative. The difference between 25 and 50 miles per hour in speed is clear to us, but note that we introduce motion and space before we can get a conception of time as a succession of events, but time, in itself, remains elusive.

In time measures we strive for a uniform motion of something and this implies equal spaces in equal times; so here we assume just what we cannot explain, for space is as difficult to define as time. Time cannot be "squared" or used as a multiplier or divisor. Only numbers can be so used; so when we speak of the "square of the time" we mean some number which we have arbitrarily assumed to represent it. This becomes plain when we state that in calculations relating to pendulums, for example, we may use seconds and inches, or seconds and meters, and the answer will come out right in the units which we have assumed. Still more, numbers themselves have no meaning until they are applied to something, and here we have applied them to time, space and motion; so we are trying to explain three abstractions by a fourth. Happily, these assumptions and calculations are borne out in practical results.

Determining Time. In determining how to set our time-pieces and to check their accuracy after a period of time we must have something that moves equal spaces in equal times, the most uniform movement possible, a movement whose speed must be the same today, tomorrow, in a year, and in an indefinitely prolonged period. The rotation of the earth on its axis meets this condition absolutely; no cause or effect whatever could increase or diminish it. We have positive proofs that this movement is the same today as it was 2100 years ago. We can assure ourselves by the calculation of the eclipse, that the length of one of these revolutions is the same today as in 200 B. C. within 1/200 of a second.

This movement has then been chosen because of its great regularity as the basis for the measuring of time. The duration of a complete revolution is the unit, and is called a day.

In order to determine with exactitude the commencement and the end of this movement, it is necessary to choose a point of repose outside of the earth, and for this purpose the sun or a fixed star is taken, the result differs according as we take one or the other of these points.

Should we take the sun as our point of observation we will find that, as the earth moves around the sun in an ellipse and moves faster when nearest the sun and slower when it is farthest away, the arcs traversed by the earth in one day are not of exactly the same length during all the year. There results an irregularity in the duration of the solar day, the solar day being longest when the earth goes fastest, and is shortest when the movement is slowest. The length of the solar day can therefore vary as much as 30 seconds plus or minus in 24 hours.

True Solar Time. The direct interval elapsing between two successive passages of the sun across the meridian at noon is called true time. This diurnal rotation of the earth on its axis might naturally be supposed to bring each place to the meridian at regular intervals; this would be nearly the case if the earth had no other movement; but as it advances at the same time in its orbit, and as the meridians are not per-

(Continued on Page 24)

Watchmakers' Competition—1937 National Convention

During the 1937 Convention in Chicago, our Technical Board will conduct an exhibition of workmanship, such as watches, tools, new ideas for tools, clocks, etc. Suitable prizes will be awarded in the various classes of entries. All watchmakers are urged, whether member or not, to take part in this competitive display of workmanship.

If you have an exceptional or unusual piece of work you should make arrangements for its display during the 1937 Convention.

To those who desire to participate in this exhibit and competition, would suggest that they write into the National Office at once for application registration form. No entries will be made or accepted without this application.

Cincinnati Guild

Held its forty-first regular meeting October 2nd with a fine attendance.

The Guild planned for elaborate displays during "Watch Inspection Week"; also a large newspaper cooperative "ad."

Our educational work is proving to be very helpful to all. Our last lecture was on escapement work, using slides to illustrate. Each member was asked to take part, and many varied views were expressed.

Election was held at this meeting. Following officers elected: President, Leo Hoffer; Vice President, Harry Flotemersch; Recording Secretary, George Hook; Corresponding Secretary, Joseph Voss; Financial Secretary, Frank Demmer; Treasurer, Hans Demmer; Sergeant at Arms, Max Gregor; Legal Advisor, Edward Mittendorf; Executive Board, Frank Foegler, R. Aukenthaler and Frank Garrett.

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301 UNIVERSITY BUILDING DENVER, COLORADO

One of the earliest self-winding watches was made by R. Bowen of London, England, in 1686. Breguet later made a self-winding watch called Pedometer.

Among our earliest self-winding watches, we find a hunting case watch, that by opening and closing the front lid and through a series of levers, ratchets and clicks, the mainspring would be wound. This was patented by Louis Recordon in 1780. This patent was applicable to hunting case watches only.

We often hear and see of clocks designed of the different periods, such as:

Gothic Design—This style was designed by the Crusaders and was used from 1100 A.D. to 1500 A.D. The Gothic art was deeply spiritual, using pointed arches and steeple towers reaching towards heaven.

The Colonial Period existed 1620 to 1830. The design was created by the Early Pilgrims of our country and was simple, plain and sturdy. It was a combination of designs of furniture brought from England and France.

The Chippendale Period existed from 1705 to 1779. This pattern was designed by Thomas Chippendale, a cabinet maker of England. The characteristics of his work was a claw and ball foot, a feature seen on many of our clocks today.

Louis XIV Period, 1774 to 1793—Many beautiful clocks were made during this period. The designs were composed of wreathes, garlands, rope carvings and love birds. Louis XIV patterns have remained popular through all the years.

Modernistic Period, 1900—The modernistic design makes use of planes and geometric designs. Simplicity itself and found among our modern clocks of today.

A watch that is in running order cannot be wound too tight causing the watch to stop. If a watch should stop after winding, likely trouble will be found in the mainspring, it is either dry so that it cannot release itself or the oil may be gummy on the spring. It is also possible that the side shake of the barrel pivots or holes in the barrel are excessive and when wound tight, might cause the barrel to tilt out of flat and rub on the upper or lower plate. It might also cause the depthings between the center pinion and barrel to become too deep or too shallow, stopping the free motion of the barrel.

A competent watchmaker, when cleaning a watch, takes it entirely apart, also removes all double jewels, cleaning and inspecting each part before assembling.

Scientists tell us it is impossible to make a watch or timepiece that will keep absolute perfect time. However, the accuracy of time obtained from our modern observatory clocks and pocket watches is one of man's foremost achievements. When you are regulating a watch you are trying to cause the balance to make 3,024,000 vibrations per week. A railroad watch that is regulated within 30 seconds a week comes within 150 vibrations of being perfect.

EARTH, THE MASTER CLOCK

(Continued from Page 21)

pendicular to the real path of the earth around the sun, the days are not of equal duration.

MEAN TIME. While naturally the sun should measure the time for us, in reality its unequal movement does not readily lend itself to this measuring and in order to adjust this difficulty we must divide the total duration of the year by the number of solar days it contains thus arriving at a mean solar day which will be shorter than the solar days of greatest length and longer than those of least duration. This unit of fixed value was adopted so that our horological instruments, all based on uniform movement, may follow their regular running without necessitating perpetual resetting.

THE EQUATION OF TIME. As the difference between the true solar day and the mean solar day varies from day to day there is a value that must be added to or subtracted from the true solar day to obtain the mean solar day. Observatories prepare tables showing these values for each day of the year which are published in the Nautical Almanac and show what a chonometer, regulated on mean time, should indicate at the exact moment of noon, or when the sun is at its greatest height and passes over the meridian at midday. In practice the exact time of the passage of the sun across the meridian at noon is observed by a sextant, which is a telescope with a hair line across the center of its lens, and compared with the time shown by a chronometer. The value for the equation of time for that particular day is then taken from the table and added or subtracted, according to the season of the year, to obtain the mean hour.

SIDEREAL, OR STAR TIME. Sidereal time is the standard used by astronomers, and is measured by the diurnal rotation of the earth. When compared with the solar day of 24 hours we find that the sidereal day counts only 23 hours, 56 minutes and 4.09 seconds and is, therefore, shorter than the solar day by 3 minutes and 55.91 seconds. A fixed star, instead of the sun, is used as the point of observation, as stars are at such inconceivable distances from the earth they may be regarded as mere points of reference for determining the time interval between successive rotations of the earth on its axis. If we observe by a sextant the exact time a given star crosses the meridian this evening and watch for the same star tomorrow evening and observe when it crosses the meridian, the interval between these two crossings will be the exact period of time in which the earth has completed one revolution about its axis. This interval

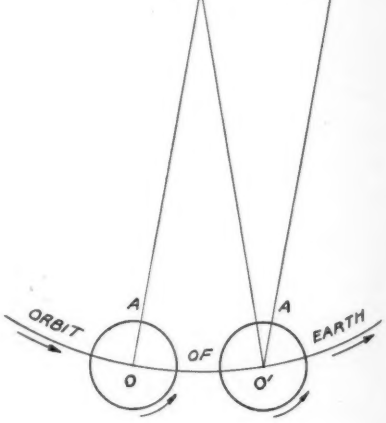


FIG 1

is called the sidereal day. The time the earth takes to traverse its orbit, that is to say a year, contains exactly one sidereal day more than solar days. Fig. 1 will serve to make the difference between solor time and sidereal time clear. If the earth were not moving around the sun, but standing still in space, one sidereal day would be the time consumed by a point on the equator, A, in going all the way round in the direction of the lower arrows. But while one sidereal day is elapsing, the earth is speeding

eastward in its orbit, from 0 to 0'. Sun and star were both in the direction AS at the beginning; but after the earth has turned completely around, the star will be seen in the direction O'A, which is parallel to OA, because OO' is an indefinitely small part of the whole distance from the star. This marks one sidereal day. The sun, however, is in the direction O'S; and the solar day is not complete until the earth has turned round on its axis enough farther to bring A underneath S. This requires nearly four minutes; so the length of the solar day is 24 hours of solar time, while the sidereal day, or real period of the earth's rotation, equals 23 hours, 56 minutes and 4.09 seconds. Therefore, in the ordinary year of 365¼ solar days, there are 366¼ sidereal days.

The pendulum of a clock, to show sidereal time, must be a trifle shorter than that used for mean time, both clocks having the same kind of train. On April 15th the two clocks would agree, but from that time on there would be a divergence of 3 minutes and 55.91 seconds per day—the star gaining each day.

In observatories the sidereal clocks are mounted on solid piers in order to eliminate vibration and are wound electrically at short intervals. They are sealed in glass cases from which the air has been partially exhausted and is kept at a uniform pressure to eliminate barometric disturbances. The regulation of the clock is affected by changing the air pressure. A barometer graduated in millimeters is placed inside the case and a change in pressure of one millimeter on this scale will change the rate of the clock .018 second. The pendulum rod is made of invar, a nickel-steel alloy which has a practically negligible coefficient of expansion, and as a further precaution to eliminate any compensation errors the clock is kept in a vault where the temperature is thermostatically controlled and kept at a constant temperature. The Riefler type clock is universally used, and maintains its rate with an average daily variation of only .02 second.

The astronomical mean solar day is reckoned from noon to noon, and the hours are counted from 1 to 24, instead of being divided into two equal spaces of 12 hours each, as is the ordinary custom; thus half-past 6 o'clock in the morning, of say the 2nd day of January, would be expressed by astronomers as January 1st, 18 hours, 30 minutes. In the astronomical regulator the hour circle is accordingly divided into 24, and the hour hand goes round once in 24 hours.

THE NAUTICAL DAY. The nautical day commences when the sun is on the meridian at noon. Then 8 bells are struck on the ship's bell and the afternoon watch is begun. At each half-hour thereafter 1 bell is struck, and the time is spoken of as 1 bell, 2 bells, etc., until at 4 o'clock 8 bells are struck again. At 4 o'clock begins the first dog watch, which lasts two hours, the periods being struck as before, ending at 6 o'clock with 4 bells. Then begins the second dog watch, also of two hours duration, ending at 8 o'clock, the half hour intervals being struck 1, 2, 3, 8; 8 bells marking the completion of the second dog watch. Next comes the middle watch lasting 4 hours, and struck like the afternoon watch. The night watch, the morning watch, the forenoon watch, each of 4 hours similarly marked, follow in succession; the forenoon watch ending at noon with 8 bells completes the day. Thus for ship time 8 bells indicates the passage of each four hours from noon to noon, while the other strokes indicate the passage of the half hours in between.

DURATION OF THE YEAR. OUR CALENDAR. As far back as 4000 B. C. the astrologer—astronomers of that period devised a calendar that has come down to us with few changes. These ancients named the stars for their gods and worshipped them in their temples and gave much of their time to the study of their movements. They observed that the sun took a certain time in its movement from its furthest north to furthest south and return and from this they worked out their year. In order to calculate time,

they devised the zodiac, a belt encircling the heavens and showing the course of the sun, and the location of twelve groups of stars, or constellations, through which it would seem to pass if its light did not blot out theirs. They divided the region of these twelve constellations into the same number of equal parts; consequently, the sun passing from any given point around the heavens to the same point, occupied in so doing an amount of time that was arbitrarily divided into twelfths. They also observed that the moon went through its phases, from full moon to full moon in about thirty days. So one moon, or one month, corresponded with the passage of the sun through one sign of the zodiac. Our own word month might have been written moonth, as that is its meaning. That gave them a year of twelve months, each month having thirty days, or three hundred and sixty days in all.

The week of seven days they also devised and it was obtained from the names of the seven gods which they worshiped and a day was named for each one of them. These names have been changed to the names they have today and in the Saxon but represent the same stars that they did originally. They also divided the day and night into twelve hours; and the hour into sixty minutes and these again into sixty seconds. The choice of sixty was made for practical reasons. No lower number can be divided by so many other numbers. Sixty divides naturally into fives, fifteens and thirties and gives us our dial which is so quickly read. This year of three hundred and sixty days was, of course, five days too short, so in six years the difference would amount to one month. Every sixth year they added a month making thirteen months for the year; that was the origin of the leap-year, which we still use to correct our calendar, but more accurately.

This calendar remained in use up to the time of Julius Caesar. The names of the months and weeks had been changed to the Latin language and instead of an extra month the Romans added the extra five days to several of the months, one day to each. This gave some of the months thirty-one days.

Julius Caesar in 46 B. C., reformed the calendar, in accordance with calculations of the astronomer Sosigenes who had found that the length of the year was very nearly 365¼ days, by decreeing that three successive years of 365 days should be followed by a year of 366 days perpetually. But it was found that the Julian year, as it was called, was 11.2 minutes too long. In the latter part of the 16th century the error amounted to 10 days.

Pope Gregory XIII corrected this, and established a farther reform, whereby three leap-year days are omitted in four centuries. Years completing the century, as 1900 and 2000, are centurial years. Every year not centurial whose number is exactly divisible by 4 is a leap year; but centurial years are leap years only when exactly divisible by 400. The year 1900, then, was not a leap year, but the year 2000 will be. In 1752 England adopted the Gregorian calendar and it is now in use in most of the world. The inconveniences of the present Gregorian calendar are many and some authorities think it on the whole no improvement on the Julian; and certainly much confusion would have been avoided if the Julian calendar had been continued in use everywhere.

An obvious change having many advantages would be the division of the year into 13 months, each month having invariably 28 days, or exactly 4 weeks. Legal holidays and anniversaries would then recur on the same days of the week perpetually. The chief difficulty would arise in the proper disposition of the extra day at the end of each ordinary year; and of the two extra days at the end of each leap year. These could be named for some great person or event in history and be holidays and not parts of any month. But any such change can be brought about only by wide international agreement.

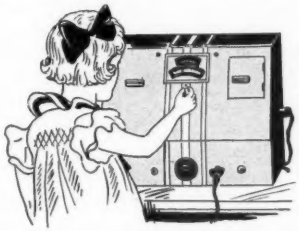
The New DeLuxe Model D Paulson Time Micrometer

In the new Model D Paulson Time Micrometer a great forward step has been taken. To produce a machine at a moderate price it has always been necessary to make comparisons between two time-pieces, the master watch and the watch being testcd, and these readings were necessarily made on the same dial. This required switching back and forth between the master watch and the watch under test after which the difference was noted and the correct rating obtained. In the new Model D this comparison has been eliminated.

Accuracy Still Fundamental Virtue

Accuracy is still its fundamental virtue and now ratings can be obtained instantaneously, as easily as reading the dial on the speedometer of your automobile. The secret lies in an automatic control preventing the interference of variations in the electric current from having any effect. This new invention simplifies the entire operation. No longer need one make a comparison between the master watch and the test watch. The readings are taken directly from the dial, quickly, accurately and within 1/100 of a second, or even closer to absolute if desired.

Master Watch Controls the Dial



And in the new Model D your master watch controls the dial. As the dial makes one revolution per second, if the master watch is perfect the dial will make 86,400 revolutions per day. If your master watch is 3 seconds fast the dial will make 86,403 revolutions per day. With this control of the dial, single readings can now be made. All that is neccessary is to place the test watch on the microphone and in a few moments you have an accurate 24 hour rating for the watch.

Has Dramatic Appeal

One actually sees the tick sounds flashed on the dial. The dramatic appeal which the ticks of the watch turned into light has for the customer, is proved by the rapt attention which he gives to these flashes when he sees them on the dial. The great advantage of the amplified sounds through the head-phones is also maintained in this model. This is a tremendous advantage in the repairing of watches.

Necessary Repairs Quickly Detected

If the watch is running at all you can go directly to the trouble. For checking the poise of the balance it is necessary only to permit the watch to run a few minutes pendant up, note whether gaining or losing, which has been instantly recorded, then turn the microphone over to put pendant down and you instantly have a record of the watch in that position. A comparison of these two positions will at once show whether the balance is properly poised.

To check the balance pivots and balance jewels, test dial up and then dial down. The difference in rating tells the story. Mainsprings, one of the most difficult of watch parts to test, can now be fully checked by placing the watch, unwound, on the microphone, and then testing for rating after making two turns. This

procedure is followed through until the watch has been fully wound. The result gives the rating for enough windings of the mainspring to give an accurate knowledge of its performance.

The hundreds of jewelers who personally tested the new DeLuxe Model D at the recent National Jewelers' Convention in New York City know the speed with which watch ratings can now be had. As one jeweler put it, "It's as quick as the eye can see."

Crystal Grinder Good Investment

Every jeweler has learned when fitting fancy shape crystals that even though he have an elaborate assortment, a crystal that fits satisfactorily is often difficult to find. There is usually some little variation in the bezel and the result usually is an excess of time and labor expended trying crystal after crystal, as well as many a chipped or broken crystal.

A Grinder in the shop makes a different picture. A little touch here or there and the crystal snaps in—a perfect fit. The jeweler whose crystal business does not warrant maintaining an elaborate assortment of crystals is especially benefited by the use of grinder. A Minute of time and a crystal that could not possibly be used in its' original size can be altered to fit perfectly. The jeweler is saved the expense of sending the bezel out to have a crystal fitted and the customer gets prompt service.

Many jewelers buy inexpensive, unedged blanks and finish them complete for each job. That, of course, takes a little more time, but yields greater profit.

Perhaps the finest Grinder available, both from the standpoint of general efficiency and excellence of construction, is the Little Giant, which is handled by C. & E. Marshall Co., Box 7737, Chicago. It has in addition to a grinding wheel, especially made for glass cutting, a felt polishing wheel for polishing the beveled edge after cutting. The wheels run in a rust proof water trough containing a sponge to prevent splashing. The machine is especially built to turn at the proper number of revolutions a minute for fast cutting without chipping. An exclusive feature is a guide rest at the front to keep the hand steady while holding the crystal against the stone. Another Little Giant feature is the hardened, adjustable cone bearings; they can be taken up to compensate for wear, which guarantees the user complete freedom from friction and vibration, even after the machine has been in service many years.

While the Little Giant sells for only $9.75 the makers (who incidentally enjoy an enviable reputation for producing small size machines which surpass the more bulky and complex ones in both ruggedness and efficiency) guarantee it to be superior to even the most expensive machines. It is being distributed by C. & E. Marshall Co., who advertise it on page 16 and 17 of this issue.

R. E. Fisher

Mr. Fisher, Daton, Ohio National Publicity Director, invites all associations or their publicity chairmen to contact him regarding their publicity programs. Also send him your programs being used or planned in order to aid in this work. An extensive program designed to better acquaint the consuming public is being formed at this time and shall appear in national publications and newspapers thruout the country.

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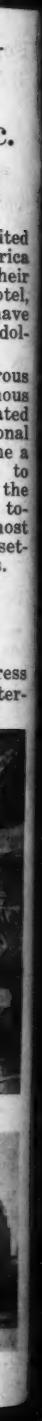
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